

contacting said population of nucleic acid molecules with a first targeting element in a first identification step, wherein said first targeting element binds specifically to said target nucleic acid sequence;

selectively attaching a separation group to said bound targeting element in a second identification step, wherein attachment of said separation group is conditional on the presence of said distinguishing element in the vicinity of said bound targeting element;

immobilizing said bound targeting element via said attached separation group to a substrate, thereby forming an immobilized targeting element-separation group complex comprising said at least one nucleic acid sequence of interest; and

removing said immobilized targeting element-separation group complex comprising said at least one nucleic acid sequence of interest from said population of nucleic acid molecules, thereby separating said nucleic acid sequence of interest from said population of nucleic acid molecules.

19. (Twice Amended) A method for separating a nucleic acid of interest from a population of nucleic acid molecules, the method comprising;

providing a population of nucleic acid molecules comprising at least one nucleic acid sequence of interest, wherein said at least one nucleic acid sequence of interest includes a target nucleic acid sequence in the vicinity of a distinguishing element;

contacting said population of nucleic acid molecules with a targeting element attached to a separation group in a first identification step, wherein said targeting element binds specifically to said target nucleic acid sequence;

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selectively removing said attached separation group from said bound targeting element in a second identification step, wherein removal of said separation group is conditional on the absence of said distinguishing element in the vicinity of said bound targeting element;

immobilizing to a substrate separation groups remaining attached to said targeting element, thereby forming an immobilized targeting element-separation group complex comprising said at least one nucleic acid sequence of interest; and

removing said immobilized targeting element-separation group complex comprising said at least one nucleic acid sequence of interest from said population of nucleic acid molecules, thereby separating said nucleic acid sequence of interest from said population of nucleic acid molecules.

### REMARKS

As an initial matter, Applicants thank the Examiner for the courtesy extended in the August 22, 2002 interview and September 17, 2002 telephonic interviews. Applicants appreciate the opportunity to discuss the issues pending in the case.

Claims 1 and 19 have been amended. Support for the amendments appears in the specification at, e.g., page 3, lines 7-9 (disclosing a targeting element binding to a target nucleic acid sequence in the vicinity of a distinguishing element); page 7, lines 12-14 (disclosing a